Objectives: Endovascular intervention (EVI) is increasingly performed in patients with tissue loss (TL) and complex anatomy who would otherwise require primary amputation (PA). Guidelines for intervention/outcome analysis have been limited. We compared outcomes and costs associated with secondary amputation (SA) for nonhealing TL after EVI with PA in patients with critical limb ischemia (CLI) and TL.

Methods: All patients who presented to our health care system for surgical management of TL due to CLI from 2008 to 2010 were identified. Demographics, comorbidities, postoperative complications, insurer costs, follow-up hospitalizations, ambulatory/living status were analyzed (SPSS 21).

Results: There were 304 admissions: 263 (87%) EVI and 41 (13%) PA. Mean follow-up was 27 months (range, 0-101 months). SA was required in 80 (30%); mean time 6 months (range, 0-46 months). Independent predictors (likelihood ratio) for SA were contralateral amputation (4.1), gangrene (3.6), dialysis (3.1), TL not confined to the toes or heel alone (4.3), and preoperative angiogram showing less than two-vessel runoff (3.1). Comorbidities were comparable for SA and PA, including location of TL and presence of gangrene. Infection was more common in PA (87.8% vs 57.5%; $P = .001$). Postoperative mortality was higher for PA (4.9% vs 0%; $P = .05$), and 24-month survival was poorer (74% ± 8% vs 87% ± 4%; $P = .03$). Hospitalizations (including amputation-related readmission), total hospital days, and insurer costs were higher for SA than PA (Table). Thirty-nine (48%) SA underwent reintervention. There were no significant differences between SA and PA in maintenance of independent living (71% vs 72%; $P = .95$) or ambulation (42% vs 58%; $P = .33$).

Conclusions: Although ambulation and maintenance of independent living are comparable between SA and PA, EVI may be justified because of higher mortality in the PA group. However, multiple reinterventions will increase costs and incapacitation without improving outcome.

Table. Comparison of insurer costs and hospitalizations for primary amputation versus early secondary amputation following endovascular intervention without healing

	PA	*SA*	P
Insurer costs	$30,234	$68,012	<.001
Hospitalizations ≥4	0%	31%	<.001
Total hospital days	20	35	.015

Author Disclosures: G. Cherr: Nothing to disclose; **G. R. Curl**: Nothing to disclose; **H. H. Dosluoglu**: Nothing to disclose; **M. Dryjski**: Nothing to disclose; **L. Harris**: Nothing to disclose; **S. Noor**: Nothing to disclose; **M. O'Brien-Irr**: Nothing to disclose.

PS164.

Regional Differences in Patient Selection and Treatment of Lower Extremity Arterial Disease in the Society for Vascular Surgery Vascular Quality Initiative (SVS VQI)

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Objectives: Studies have shown regional differences in surgical practice though management of lower extremity arterial disease (PAD) has not been investigated. We used the Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) to evaluate regional variation in PAD management.

Methods: SVS VQI was used to identify all infrainguinal bypass or endovascular intervention (PVI) from 2009 to 2012. Each of 14 quality groups was considered a region. Groups were deidentified. Indications and surgical approach were compared between groups. Groups with fewer than 100 cases were excluded on a per analysis basis.

Results: We identified 29,131 patients (20,987 PVI [48% claudicants], 8144 bypass [27% claudicants]) from 14 regions. Median case number per region was 1090 (range, 115-10,251). Substantial regional differences in patient comorbidities (eg, congestive heart failure, dialysis), indication for procedures (eg, infrapopliteal PVI for TASC D lesions), technical approach (eg. usage of prosthetic graft for infrapopliteal bypass graft) and use of evidence-based process measures (eg, chlorhexidine skin preparation for bypass) are demonstrated in the Table ($P < .001$ for all listed parameters).

Conclusions: This first investigation of a national clinical database demonstrates significant regional variation in PAD management. Future studies on the association of regional variation with risk-adjusted outcomes offer the opportunity for quality improvement through prospective identification of best practices.

Table. Range of practice pattern for lower extremity arterial disease among VQI regional groups

	Min	*Max*
All patients with claudication (vs all other indications), %	24	64
Claudicants receiving bypass (vs PVI), %	6	45
Infrapopliteal PVI for claudication (vs all other indications), %	11	27
Prosthetic graft for infrapopliteal bypass (vs vein), %	18	45
Bypass patients with chlorhexidine prep (post-2011), %	50	92
Infrapopliteal PVI for TASC D, %	16	74
Infrapopliteal PVI with stent (vs PTA only), %	21	58
All patients discharged on antiplatelet and statin, %	52	77
All patients with congestive heart failure, %	10	21
All patients with dialysis dependence, %	4	16

Author Disclosures: S. Berthiaume: Nothing to disclose; **D. B. Buck**: Nothing to disclose; **T. Curran**: Nothing to disclose; **J. D. Darling**: Nothing to disclose; **P. P. Goodney**: Nothing to disclose; **J. C. McCallum**: Nothing to disclose; **B. Nolan**: Nothing to disclose; **M. L.**

Schermerhorn: Endologix, consulting fees or other remuneration (payment).

PS166.

Risk Stratification of the Overall Survival of Patients With Critical Limb Ischemia due to Below the Knee Lesions

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Objectives: To assess the efficacy and durability of endovascular therapy (EVT) as a first approach, we evaluated the short- and long-term outcomes of the first revascularizations achieved using EVT-first compared with bypass surgery (BSX)-first. Next, we explored factors influencing overall survival (OS) using multivariate analyses.

Methods: A total of 228 consecutive below-the-knee (BTK) revascularization procedures (189 patients) for critical limb ischemia (CLI) between November 2006 and September 2013 were retrospectively analyzed. Patients undergoing revascularization were divided into two groups. No statistically significant differences were noted between the two groups with respect to preoperative background.

Results: The average age was 74.7 years (123 men and 66 women) in both groups. The ratio of lost to follow-up of all subjects was only 1.1%. Mean follow-up periods were 22.6 (range, 3-86) months. No significant differences were noted in the short-term results in EVT-first revascularizations compared in BSX-first. The long-term OS rates were slightly better in BSX-first than in EVT-first. Multivariate-analysis of all subjects revealed that the OS rates were not affected by EVT-first but by five severe risk factors as follows: (1) age >80 years, (2) hemodialysis, (3) congestive heart failure, (4) serum albumin <3 g/dL, and (5) a nonambulatory limb.

Conclusions: OS in patients with CLI due to BTK lesions is worse with three or more of the severe risk factors, and in such patient the EVT-first procedure is effective.

Table. Multivariate analysis for overall survival using of significant parameters according to univariate analysis.

Variables (N=189)	*HR*	P
Age >80 years	2.6	<.01
EVT first	1.3	.44
Hemodialysis	1.7	.03
Congestive heart failure	3.0	<.01
Nonambulatory leg	1.7	.04
Albumin <3.0	2.2	.02
Body mass index <18.5	1.3	.23
C-creative protein >3.0	1.2	.43

Author Disclosures: K. Iwasa: Nothing to disclose; **T. Ohmine**: Nothing to disclose; **T. Yamaoka**: Nothing to disclose.

PS168.

Dissecting the Results of Lower Extremity Revascularization in Dialysis-Dependent Patients

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Objectives: Optimal patient selection for revascularization remains a clinical challenge among the hemodialysis (HD) dependent, despite advances in surgical care and endovascular techniques. The purpose of this study was to examine contemporary real world outcomes of HD patients to facilitate patient selection for revascularization.

Methods: A regional multicenter registry was queried between 2003 and 2013 for HD-dependent patients (N = 689) undergoing open surgical bypass (n = 295) or endovascular intervention (n = 394) for lower extremity revascularization. Patient demographics and comorbidities were recorded. The primary outcome was overall survival. Secondary outcomes included amputation-free survival (AFS), graft patency, and freedom from major adverse limb event (MALE). Short-term and long-term outcomes were examined. Multivariate analysis was performed to identify independent risk factors for MALE and death.

Results: Among the 689 HD patients undergoing lower extremity revascularization, 66% were male and 83% white. Tissue loss was the most common indication for intervention. The 1-, 2-, and 5-year overall survival remained low at 59%, 43%, and 21%, respectively. Observed 1-year and 2-year AFS was at 40% and 17%. Mortality was the primary mode of failure for AFS, (70% bypass, 80% endovascular; $P = .08$). Survival and AFS did not differ significantly between revascularization techniques. Multivariate analysis identified age >80 (HR, 1.5; $P = .014$), preadmission nursing home status (HR, 2.19; $P = .001$), chronic obstructive pulmonary disease (HR, 1.46; $P = .038$), and preoperative wheelchair/bedridden status (HR, 1.94; $P < .001$) as independent predictors of MALE or death.

Conclusions: Overall survival and AFS among HD-dependent patients remains poor, irrespective of revascularization strategy. Mortality remains the primary driver for these findings. Focus for improved results should emphasize predictors of survival to optimize patient selection for revascularization.

Author Disclosures: J. M. Fallon: Nothing to disclose; **P. P. Goodney**: Nothing to disclose; **A. D. Hamdan**: Nothing to disclose; **J. A. Kalish**: Nothing to disclose; **B. W. Nolan**: Nothing to disclose; **V. I. Patel**: Nothing to disclose; **D. H. Stone**: Nothing to disclose; **Y. Zhao**: Nothing to disclose.